as well as an anatomist; as a young man of twenty-two he collected, edited, and published his father's anthropological researches, and from 1864 until his death devoted much of his time to unravelling the history of the inhabitants of Scandinavia. In 1900 he published a magnificent atlas, giving exact reproductions of ancient Swedish skulls; in 1902 he and his colleague, Prof. Karl Fürst, brought out an exhaustive work on the anthropology of Sweden. He published several papers on the Lapps and on the Finns. In 1909 he was invited by the Royal Anthropological Institute of this country to give the Huxley lecture, which he devoted to "The So-called North European Race of Mankind." He recognised the merits of the race, but took, as we think, an unnecessarily gloomy view of its future.

Great as were Retzius's contributions to anthropology, his extensive researches in anatomy are even more important. His father's first publication, in 1822, was devoted to the anatomy of the Myxine; the son continued that work. In conjunction with his colleague, Prof. Axel Key, who held the chair of pathology, Retzius published in 1875–76 a monograph in two great and splendidly illustrated volumes, which is still the standard work in all that relates to the cerebro-spinal coverings and spaces. Perhaps the main interest of his life was his investigations of the intricate internal ear or labyrinth of vertebrate animals, an account of which he published in 1881–84. His monographs on the structure of the cortex of the brain, on the end-organs of nerves, and on the brains of human races and of anthropoid apes, and his more minute researches on the morphology of spermatozoa and of nuclear structure, will provide biologists for all time with a sure groundwork on which to base their speculations. He was content to gather the facts and leave to others the more pleasant task of interpreting their meaning. He had the fortune to marry a lady who not only was in the deepest sympathy with his life's work, but also made it financially possible for him to place his researches at the disposal of all the world in a form which has earned the envy as well as the gratitude of every anatomist.

A. Keith.

NOTES.

The meeting of the International Research Council, which was opened at Brussels on July 18 in the presence of the King of the Belgians, concluded its labours on July 28. Much successful work was accomplished. The statutes of the International Council were finally agreed to, and unions embracing the whole subject of astronomy and the various sections of geophysics were formed. In other branches of pure and applied science proposals for the formation of international associations were discussed and formulated. These will have to be submitted to the authorities concerned in the different countries before they can be formally adopted. A resolution inviting the co-operation of nations that had remained neutral during the war was adopted unanimously. Brussels was selected as the legal domicile of the International Research Council. Its triennial meetings will be held in that city, and gifts or legacies will be administered according to Belgian law. But the associations dealing with special subjects will probably follow the established custom of holding their conferences successively in different countries. The secretariat of the council will be at Burlington House, where the Royal Society has placed a room at the disposal of the general secretary.

Sir Arthur Boscawen, Parliamentary Secretary to the Board of Agriculture, moved the second reading of the Forestry Bill on August 5 in the House of Commons. In the discussion reference was made to the large expenditure of between 40,000*l.* and 50,000*l.* which is to be spent in the setting up of the new staff and other outlay; the divorce of agriculture from forestry, with the consequent impossibility of dealing adequately with the small holdings policy; and the friction which may arise between the agricultural and forestry authorities. Sir Philip Magnus pointed out that the chief defect of the Bill lay in its silence on the necessity of having on the central authority a preponderance of fully qualified scientific experts. He warned the supporters of the Bill and the Government of the grave danger of proceeding with this new afforestation scheme without the guidance of scientific advice, the neglect of which in the past had so often resulted in Government schemes ending in disaster. This aspect of the Bill he proposed to insist upon in the Committee stage of the Bill. Mr. Barnes, in replying as a Minister to the criticisms made, said he thoroughly agreed with Sir Philip Magnus as to the need for scientific men among the Commissioners, and that the point would be sympathetically considered

A committee has been formed, under the chairmanship of Lord Rothschild, to establish a memorial to the late Frederick Du Cane Godman, in acknowledgment of his lifelong devotion to the interests of natural history and in grateful testimony of the many valuable benefits conferred by him in promoting the study of natural science in this country. At a meeting of the committee held at the Natural History Museum in April last it was resolved that the memorial should take, primarily, the form of a bronze tablet with medallion portraits of Mr. Godman and of the late Mr. Osbert Salvin, Mr. Godman's lifelong friend and collaborator in all his scientific enterprises, and that this tablet, with a suitable inscription, should be offered to the Trustees of the British Museum, to be placed in the Natural History Museum at South Kensington. The committee hopes to be in a position to do something additional to perpetuate the memory of Mr. Godman by helping to establish a less local form of memorial. Dame Alice Godman and her two daughters have offered to found an exploration fund with the sum of 5000*l.*, the proceeds of which are to be devoted to making collections for the advancement of science and for the benefit of the Natural History Museum. The committee, therefore, proposes that any amount received by it over and above that required for the bronze tablet shall be added to the exploration fund. It is hoped that this may form a permanent basis for future donations and bequests for the same purpose. The committee confidently asks for funds to carry out this scheme. Contributions should be sent to Mr. C. E. Fagan, hon. treasurer, Godman Memorial Fund, Natural History Museum, Cromwell Road, London, S.W.7.

The autumn meeting of the Institute of Metals, under the presidency of Prof. H. C. H. Carpenter, will be held in Sheffield on Wednesday and Thursday, September 24 and 25. This is the first gathering of the institute since 1913, when a meeting was held in Ghent. Among the communications to be submitted to the Sheffield meeting are:—Prof. P. G. H. Boswell, Moulding Sands for Non-ferrous Foundry Work; Prof. C. H. Desch, Second Beilby Report on the Solidification of Metals from the Liquid State; Miss H. E. Fry and Dr. W. Rosenhain, Observations on a Typical Bearing Metal; Dr. W. H. Hatfield and Capt. G. L. Thirkell, Season Cracking of Brass; R. E. Leader, The Early History of Electro-silver Plating; E. A. Smith and H. Turner, The Properties of Standard or Sterling Silver, with Notes on its Manufacture; Dr. J. E. Stead, The Ternary Alloys of Tin-Antimony-Arsenic; Dr. F. C. Thompson, Graphite and Oxide Inclusions in Nickel Silver; and Dr. F. C. Thompson and F. Orme, Some Notes on the Constitution and Metallurgy of Britannia Metal. It is expected that some hundreds of engineers and metallurgists from all parts of the world will take part in the proceedings, which will include visits to several famous works.

The seventh annual meeting of the Indian Science Congress will be held at Nagpur on January 13–18, 1920. The Chief Commissioner, Sir Benjamin Robertson, has consented to be patron of the meeting, whilst Sir P. C. Rây will be president. The following sectional presidents have been appointed:—*Agriculture:* D. Clouston. *Physics and Mathematics:* Dr. N. F. Moos. *Chemistry:* B. K. Singh. *Botany:* P. F. Fyson. *Zoology:* E. Vredenburg. *Geology:* P. Sampatiengar. *Medical Research:* Lt.-Col. J. W. Cornwall. The honorary local secretaries are Messrs. M. Owen and V. Bose. Further particulars can be obtained on application to the honorary general secretary, Dr. J. L. Simonsen, Forest Research Institute and College, Dehra Dun.

The Baly medal of the Royal College of Physicians, awarded on the recommendation of the president and council every alternate year to the person who shall be deemed to have distinguished himself in the science of physiology, especially during the two years immediately preceding the award, has been awarded this year to Dr. Leonard Hill. The Harveian oration of the college will be delivered by Dr. Raymond Crawfurd on St. Luke's Day, October 18; the Bradshaw lecture on November 6 by Dr. A. P. Beddard; and the FitzPatrick lectures on November 11 and 13 by Dr. E. G. Browne.

A good account of that interesting race, the Nayars of Malabar, was much needed, and it has now been provided by a native writer, Mr. K. M. Panikkar, in the Journal of the Royal Anthropological Institute (vol. xlviii., part 2). Among the more important points he describes the strength of their village organisation, the undivided family and descent in the female line, and the classificatory system of relationship. Cross-cousin marriage is the orthodox custom, and the result of the influence of the Nampudiri Brahmans on their social system has produced those complications which render the study of it at once fascinating and difficult. In agreement with other observers, he regards the Talikeltu marriage as the actual and religious form, the girl being allowed after its performance to choose her own suitor; she does not mourn at his death, and is not regarded as a widow; but when the man who actually tied the Tali or symbol of marriage round her neck dies, she undergoes certain formalities of mourning. The existence of actual polyandry is still a matter of debate, but no case of the kind is said to have occurred during the last fifty years.

Students of fossil botany should not overlook Dr. Walkom's studies on the Mesozoic floras of Queensland, which are appearing as publications of the Queensland Geological Survey (A. J. Cumming, Brisbane).

The issue of separate papers from the New Zealand *Journal of Science and Technology* renders a number of observations available in a very handy form. Prospectors will be especially interested in Mr. P. G. Morgan's "Magnesite and Dolomite in Australia and New Zealand," which contains numerous analyses of material greatly in demand.

In two detailed papers on ripple-marks in sedimentary rocks (*Amer. Journ. Sci.*, vol. xlvii., pp. 149 and 241, 1919), Mr. W. H. Bucher lays stress on the production of ripples at rhythmic intervals in road-surfaces under moving loads, and in other cases where a surface is affected by friction, and regards ripple-mark as due to "the tendency of two substances in moving past each other to form a surface of contact which offers a minimum of resistance by substituting a rhythm for uniform motion." A useful bibliography is appended, and a marked addition is made to previous studies of the subject.

A bulletin by Mr. E. S. Simpson (Geol. Survey Western Australia, No. 77, 1919) on the sources of industrial potash in Western Australia is opportune in its treatment of glauconite, and it is pointed out that mixture of a greensand with superphosphate renders "much, if not all, of the potash in glauconite water-soluble." The alunite occurring in veins of kaolinised rock at Kanowna is stated to be widely distributed over the belt of weathering, and contains some 9 per cent. of potash. In view, however, of its possible origin in other cases through sulphur-bearing waters, there seems no reason why it should be confined only to weathered masses of rock.

Prof. Omori's sixth memoir on the eruptions and earthquakes of the Asama-yama occupies the whole of the last Bulletin (vol. vii., 1919, pp. 327–456) of the Imperial Earthquake Investigation Committee. The greatest eruptive activity of the volcano was manifested during the years 1911–13. The year 1914, with which the present memoir deals, apparently forms the closing stage of the series. Indeed, after the explosion of November 20, 1913, the volcano remained quiet for nearly two months, resuming activity simultaneously with the great outburst of the Sakura-jima in southern Japan in January, 1914. In this year there were twenty-nine prominent eruptions, the last of which occurred on December 16, but from this day until March of the present year the volcano has been free from explosions, though not entirely from earthquakes of volcanic origin. The conclusion of the period of activity has been marked in several ways. The lava-floor of the crater has sunk almost to the level which it maintained before the great upheaval of 1912. The explosions caused strong detonations, but, with two exceptions, the precipitation of ashes was extremely slight. As the explosive activity declined the average duration of the preliminary tremors of the non-eruptive earthquakes increased, showing that their foci were situated either at a greater depth below the crater or at a greater radial distance. At the same time a larger proportion of these earthquakes were sensible without instrumental aid. In the sound-areas of four of the explosions in 1914 the silent zone was developed, the outer sound-area being at about the usual distance from the volcano, but in two cases diverging from the usual south-westerly direction to the south-east and east-north-east.

THE fourth report of the Advisory Committee, associated with the Meteorological Office, on Atmospheric Pollution, dealing with observations in the year 1917–18, is published as a supplement to the *Lancet* for June 14. The first report gave the results obtained for the year 1914–15, and appeared in the *Lancet* of February 26, 1916. Uniformity of system is maintained in publishing the results, which adds much to the value of the observations. The stages of pollution are grouped under the first four letters of the alphabet, A having the smallest, and D the greatest, deposit per square kilometre; this method of classification greatly simplifies comparison. A list of the observing stations in different parts of the British Isles is given, showing in each case the position of the deposit gauge and the nature of the exposure. The Malvern gauge is representative of uncontaminated country air, whilst the gauge at Newcastle-upon-Tyne gives the highest degree of contamination. The air was much contaminated during April, 1917, the total solids at Newcastle-upon-Tyne amounting to 44·28 metric tons per square kilometre, which is more than double the amount in any other month except August, 1917, when the amount was 28·50 metric tons per square kilometre. At Malvern the largest amount of total solids was 5·15 metric tons per square kilometre in May, 1917. The report says:—"While the deposit of soluble matter is not strictly proportionate to the rainfall, it is obvious that there is a general tendency to vary directly with the rainfall." The insoluble matter and the amount of rainfall bear no such relation. Details are given relative to the experimental work carried on in the investigations. The report includes some notes from the Director of Botany in British Guiana; they represent quite different conditions from those holding in the United Kingdom.

METEOROLOGICAL tables and notes are given for Falmouth Observatory for the year 1918 in a report of the Royal Cornwall Polytechnic Society. Observations have been continued for the past forty-eight years, and the average values with which the records are compared are for forty-five years—a period which ensures a great degree of dependence. The mean atmospheric pressure for the year was 1016·4 millibars (30·016 in.), which is 1·3 mb. above the average. In February the barometer attained a maximum of 1047·2 mb. (30·923 in.), and there have only been four higher readings previously, all of which occurred in January. The minimum barometer reading during the year was 976·2 mb. (28·83 in.) in November. September had the lowest mean temperature on record for that month, the mean being 55·9°; (the previous lowest mean was 56·4° in 1910. The rainfall and general weather fully account for the abnormally low temperature. The total rain measured for September was 211·9 mm. (8·34 in.), which is the greatest for the month since 1871, and it was 5·24 in. above the mean for the month, and 1·56 in. more than the previous highest total for September. The rainfall for July to December was nearly double that in the first half of the year. Bright sunshine was registered for 1752 hours, which gives a daily average of 4·8 hours. During two severe gales in January and November the wind in gusts attained the velocity of 70 and 78 m.p.h. in the respective gales. A tabular statement is given of the sea temperature near the centre of the harbour for all months, and interesting and valuable comparisons are made with the corresponding air temperatures.

A LECTURE entitled "How the Cotton Plant Provides us with Foodstuffs and other Commodities as well as with Clothing" was delivered at the British Scientific Products Exhibition by Mr. Ed. C. de Segundo on July 23. In the course of his remarks Mr. de Segundo said that, although it had been confidently asserted at a conference held in Atlanta (Georgia) in 1907 that the production of cotton in the United States would be increased in the measure required to keep pace with the home (American) and the world's demands, the United States production had declined on the whole since that year, while the proportion of the crop taken by American spinning mills had risen from about 40 per cent. in 1907 to nearly 60 per cent. in 1918. Further, the world's production had decreased each year for the last four years, whereas, according to Prof. Todd, the world required a *cumulative increase* in the cotton crop of about 800,000 to 1,000,000 bales per annum, and therefore the vital importance of the rapid extension of cotton cultivation within the Empire must be patent even to the least discerning mind. Mr. de Segundo also dealt with the industrial utilisation of the residual cotton fibres retained by cotton-seed considered as a factor in cotton economics, and with the remarkably rapid development of the cotton-seed oil and feeding-cake industry during the past fifty years. Attention was directed to the value of cotton-seed flour which is prepared from the decorticated cake produced under the American system of milling cotton-seed, and contains about five times as much protein and fat as wheat flour. It was stated that the United States Government had officially recommended cotton-seed flour as a diluent for wheat flour. Cotton-seed flour was of a bright yellow colour, and thus the admixture of even a small proportion with wheat flour gave bread baked from the mixture a yellow tinge. Mr. de Segundo stated that if cotton-seed flour could be successfully bleached it might become of great economic value, having regard to the fact that about 80 per cent. of our annual consumption of wheat had to be imported. A number of small rolls made from a mixture of cotton-seed flour and wheat flour were exhibited and distributed among the audience. At the close of the lecture one of Mr. de Segundo's cotton-seed defibrating machines was exhibited in action.

CIRCULAR 79 of the U.S. Bureau of Standards gives an account of the methods of testing and the characteristic behaviour of the various types of dry cells in use in America. It provides a summary of the information at present available on the subject, and with a view to the ultimate standardisation of the manufacture of such cells it gives specifications for the various types, their sizes, cardboard cases, zinc cans, carbons, cloth bags, mixtures, seal, terminals, tests, voltage, and short-circuit currents. Copies of the circular may be obtained from the Bureau.

THE new monthly review *L'Aéronautique*, published by Messrs. Gauthier-Villars et Cie, of Paris, bids fair to become a journal of considerable interest to those interested in aviation. The first number (June) is divided into three sections, viz. general, technical, and historical, the last being a chronicle of current events. The general articles are very well written and excellently illustrated. They are intended to appeal to the average reader and are non-technical. The technical section is independently paged, apparently so that it may afterwards be separately bound for reference. The chief article in this section of the present number is concerned with the determination of the best conditions for obtaining the greatest distance of flight for a given machine—a problem of much importance. The treatment is, however, very elementary, and some doubtful assumptions are made which prevent the attainment of a complete general solution of the problem. A short note on the equations of similarity as applied to aerial propellers is also unsatisfactory, and indicates a lack of appreciation of the true meaning of the principle of dynamic similarity. Thus, while the general articles are good, the technical section leaves something to be desired, and we hope that in future issues it will more nearly approach the standard of the rest of the production. The quality of paper and letterpress is excellent, but the price of 3·50 francs per copy seems rather high for a publication of this kind, however well produced.

IN a paper published recently in the Philosophical Transactions (vol. ccxviii., A, p. 395), Dr. A. E. H. Tutton gives a further instalment towards the completion of that colossal task to the accomplishment of which he has devoted himself through so many years, viz. the complete crystallographic and physical investigation of the sulphates and selenates of the series

$$R_2M\left(\begin{smallmatrix}S\\Se\end{smallmatrix}O_4\right)_2, 6H_2O.$$

In the investigation of the double ferrous selenates of the alkalis with which this paper deals, special difficulties were encountered owing to the unstable nature, first, of the solution of ferrous selenate and, secondly, of the crystals of potassium ferrous selenate which decompose and become opaque within a few hours of their formation. The first difficulty was overcome by the method of preparation of the ferrous selenate by the action of selenic acid upon ferrous sulphide, and the second by preparing and investigating the crystals of the potassium salt in the depth of winter. The results of the investigation are in complete accordance with those previously obtained in the case of other members of the series, and show the regular progression of crystallographic and optical properties with the increase in atomic number (or weight) of the alkalis, and also the almost perfect isostructure of the ammonium and rubidium salts.

PROF. G. H. BRYAN'S "Tables of Bordered Antilogarithms, Trigonometrical Logarithms to every Two Minutes, Natural Functions on Three Pages, Tables of Exact Squares," which occupy twenty pages of the May issue of the *Mathematical Gazette*, present certain novelties which will commend their use to calculators. The antilogarithms are given to five significant figures up to the antilogarithm of 0·61, thereafter to four figures. This increases the accuracy in the lower figures, whether used directly as an antilogarithmic table or inversely as a logarithmic table. The logarithms of the circular functions are given to every minute from 0° to 5° and from 85° to 90°, and to every two minutes from 5° to 85°. The saving of space by reading up the page for angles between 45° and 90°, although satisfactory for the practised calculator, is not regarded favourably by the school teacher. The table of squares is to five significant figures for numbers lower than 316, and to six significant figures for higher numbers. The chief advantage is that the complete square is given for every integral number up to 999. The square of a number of four digits is obtained by use of the formula $(N+x)^2=N^2+(2N+x)x$. This is a disadvantage in rapid work. For true accuracy Barlow's tables are all-essential; for limited accuracy to four figures (a very useful thing in laboratory work) the table in Chambers's "Four-figure Tables" would probably be found more serviceable. There is not the least doubt, however, that Prof. Bryan has provided us with a convenient compact set of logarithmic tables of greater accuracy than any similar set which has hitherto been devised. For many important kinds of practical work it is amply sufficient.

FROM an article in the *Engineer* of July 18 we extract the information that the Mitta Mitta Dam on the Murray River, the boundary between Victoria and New South Wales, Australia, will have a total length of 3601 ft., divided into three sections:—(*a*) An earthen dam of 2700 ft.; (*b*) a concrete spillway 740 ft. long, including turbine wells; and (*c*) outlet works, 161 ft. long. The object of the dam is to effect the storage of 1,000,000 acre-ft., or 272,250 million gallons, of water, so as to secure a regulated flow of 240,000 acre-ft. per month for irrigation during the dry season. For this purpose a height of 94 ft. from the bed of the river to full supply level will be required. The earthwork, with a core of concrete, is on the Victorian side of the river, the site-formation being alluvial, overlying beds of sand and gravel, below which there is a layer of decomposed granite of varying thickness. The bedrock of grey granite is reached at a depth of 34 ft. below surface-level, and the dam summit is 85 ft. above the same datum, the level of the crest being such as to give a margin of 12 ft. above full supply level. The spillway lies across the bed of the river, and will be constructed entirely in concrete. The cost of the scheme, including contingent works, with a series of locks and weirs from Echuca, in Victoria, to Blanchtown, in South Australia, is estimated at 4,500,000*l*., and is being met by the States of Victoria, New South Wales, and South Australia, and the Commonwealth.

THE Scientific Instrument, Glassware, and Potash Production Branch of the Board of Trade has been transferred from 117 Piccadilly to 7 Seamore Place, W.1.

A LONG list of second-hand microscopes, spectroscopes, telescopes, and other instruments and accessories has been issued by the firm of Mr. John Browning, 146 Strand, W.C.2. Copies can be obtained upon application.

WE are asked to announce that Messrs. C. F. Casella and Co., Ltd., have removed their factory from Walworth to Walthamstow, and opened offices and showrooms at 49 and 50 Parliament Street, S.W.1, to which address all correspondence for the firm should be sent.

The *University of Chicago Press* has in preparation for appearance in the University of Chicago Nature-Study Series "A Field and Laboratory Guide in Physical Nature-Study" and "A Source Book of Physical Nature-Study." A book of current interest is promised by *Messrs. J. M. Dent and Sons, Ltd.*, for the autumn, viz. one dealing with the British coal industry. It will be the work of Mr. G. Stone, the assistant secretary to the Coal Commission, who is treating the subject from the historical point of view and that of present-day needs. In the latest list of *Messrs. Longmans and Co.* we notice "The Natural History of South Africa," F. W. Fitzsimons, 4 vols., two of which are in the press, viz. vol. i., Mammals, including the Vervet Monkeys, Baboons, Galagos, Fruit Bats, Insectivorous Bats, Lions, Leopards, Serval Cats, Black-footed Cats, African Wild Cats, Caracals, and Hunting Leopards; vol. ii., Mammals, including Civets, Genets, Mungooses, Meerkats, Earth Wolves, Hyenas, Jackals, Foxes, Wild Dogs, Otters, Honey Ratels, Muishonds, and Sea Lions; "Mensuration for Marine and Mechanical Engineers (Second and First Class Board of Trade Examinations)," J. W. Angles; and a new and abridged edition of "Human Personality and its Survival of Bodily Death," the late F. W. H. Myers, with a portrait and biographical sketch of the author.

The new list of announcements of *Mr. John Murray* includes the following:—"Travels in Egypt and Mesopotamia in Search of Antiquities, 1886–1913," Dr. E. A. Wallis Budge, 2 vols., illustrated; "Conifers and their Characteristics," C. C. Rogers; three additions to the Imperial Institute Monographs on Mineral Resources, viz. "Manganese Ores," A. H. Curtis; "Tin Ores," G. M. Davies, and "Tungsten Ores," R. H. Rastall and W. H. Wilcockson; "Industrial Problems and Disputes," Lord Askwith; and new editions of "Hydrographical Surveying: A Description of the Means and Methods Employed in Constructing Marine Charts," the late Rear-Admiral Sir W. J. L. Wharton, revised and brought up to date by Admiral Sir Mostyn Field; "Microscopy: The Construction, Theory, and Use of the Microscope," E. J. Spitta; "Principles and Methods of Taxation," Dr. G. Armitage-Smith; and "Economic Statesmanship: The Great Industrial and Financial Problems Arising from the War," J. Ellis Barker.

OUR ASTRONOMICAL COLUMN.

THE AUGUST PERSEIDS.—Some of the earlier members of this rich annual shower were visible on July 30 and August 2, and, from the numbers seen, it is probable that the return this year will be an unusually abundant one. At Bristol on August 2, during a watch of the heavens extending over 2¾ hours, forty-one meteors were seen, of which eighteen belonged to the special display of Perseids. Their radiant point was at 38°+55°, and it was not a sharply defined centre, but an area extending over about 7° in diameter. This marked diffusion is rather greater than what is usually observed, for the shower radiant is often rather small and definite. The maximum of the shower may be expected on August 11 and 12, but it is unfortunate that on these dates the moon will be nearly at the full, and will hide a considerable number of the smaller meteors. The Perseids, however, are a shower yielding a large proportion of brilliant meteors, so that even in strong moonlight the event is likely to present a conspicuous aspect.

KOPFF'S PERIODIC COMET.—The following search ephemeris for comet 1906 IV., period 6·6 years, which was not seen in 1913, is published by M. Ebell.

For Greenwich Midnight.

	R.A.	S. Decl.	Mag.
	h. m.	° ′	
July 20	19 15·2	11 34·6	10·2
August 21	19 17·9	9 3·8	10·7
September 22 ...	19 49·2	8 30·7	11·5
October 24 ...	20 38·4	7 23·9	12·3

An observation by Dr. Wolf on July 30 gives R.A. 11 minutes greater than, and declination 1° 14′ N. of, the place shown by this ephemeris.

MIRA CETI.—Observations of this variable star about the time of its maximum in 1918, made by members of the Société Astronomique de France, are given in the Bulletin of that society for July. The dates estimated by the different observers at or between which the maximum may have occurred are as follows, the magnitude being added in brackets:—October 5 (3·3), September 23 (3·0), September 2–October 11 (about 3·9), September 21 (3·3), and September 25 (3·2); whilst another observer also records a double maximum on September 10 (3·65) and October 5 (3·85). Noting that the observer whose estimate is October 5 made no observation between September 11 and 26, it may be reasonably inferred that Mira Ceti was at maximum about September 23, 1918, when it was at least as bright as magnitude 3½. According to similar observations made in the previous year, the maximum occurred about October 5, 1917. The length of the mean period generally adopted for the variation of this star is 331 days, which, applied to the date September 23, shows that maximum should happen this year about August 20. M. Flammarion's *Annuaire* names August 23 as the date. Mira has been comparatively faint at recent maxima, not having been brighter than third magnitude. It was practically of the second magnitude in 1906.

ROYAL OBSERVATORY, EDINBURGH.—Prof. Sampson's report for the year ending March 31 last has again to record a restriction of work owing to the absence of the two senior assistants on important Admiralty service. In these circumstances the attention of the Astronomer Royal for Scotland appears to have been given largely to the time service and to the study of improvement in clocks. A 24-in. mirror is being made by Mr. George Calver to take the place of one of the same size on an existing telescope, the figure of which is considered imperfect, and with the instrument thus improved it is proposed to determine stellar magnitudes by the photo-electric method, the process of which is being studied.

PATENTS IN RELATION TO INDUSTRY.

AN important conference on "Patents in Relation to Industry" was held, under the presidency of Lord Moulton, in connection with the British Scientific Products Exhibition, organised by the British Science Guild at the Central Hall, Westminster, on July 31, when some of the main features of the Patents and Designs Bill now before the House of Commons came under review. Sir Robert Hadfield, who opened the discussion, mentioned that those who had been trying to get changes introduced into the patent law were, at this juncture, being strongly supported by the Federation of British Industries and the British Commonwealth Union. These two important bodies intended, he said, to press for (*a*) an extension of the present term of fourteen years; (*b*) the introduction of the American file-wrapper system into this country; and (*c*) the appointment of a judge possessing special scientific knowledge as president of the court that had to deal with patent matters. Messrs. W. W. Reid, Hunter Gray, K.C., D. Leechman, and James Swinburne, and Sir G. Croydon Marks also took part in the discussion.

The remarks of the speakers made it evident that there exists a widespread feeling that the patent law of this country is inadequate for the present needs of industry, and, moreover, that it fails to afford the inventor suitable encouragement. Although the modifications of the law proposed in the 1919 Bill will, it is agreed, introduce desirable changes, a feeling appears to exist that in this Bill are repeated many of the weaknesses of the Bill withdrawn last year. Very general agreement exists on the point that renewal fees should be considerably reduced; such reduction, it was pointed out, can be effected at once without any fresh legislation, as the Treasury and the Board of Trade already possess the necessary powers to afford the inventor the relief required by him in this matter.

Lord Moulton, in bringing the discussion to a close, stated that, however excellent may be the case for obtaining a modification of the patent law, no progress will be made in the matter unless and until it is realised that the first thing essential to be done is for those who desire reforms to convince the Press and the people of the country that it is from the point of view of the public interest that questions affecting